

## Research Note

### Determining the date of publication for *Contradens* Haas and *Uniandra* Haas (Bivalvia: Unionidae)

Establishing the date of publication for a genus or species name can be a case for Sherlock Holmes, especially if the work was published in several sections over time. The dates of publication of the *Sytematisches Conchylien-Cabinet von Martini und Chemnitz* are confusing, but dates of publication for Haas's (1910–1920) volume in this set have been presented by Haas (1923: 203) listed by *lieferung*, signatures (*Bogen*) in each *lieferung*, page numbers, and the year published. These data were summarized and repeated by Smith and England (1937), Johnson (1968), Welter-Schultes (1999: 190) and Coan and Kabat (2015). However, these authors used the dates of the *Lieferung* printed on the cover and not the dates printed on each signature. Solem (1967: 80) examined the copy of *Die Unioniden* available in Chicago and reported dates listed on the first page of each of the 43 signatures that make up the complete volume, but combined some of the signatures into a single citation. The copy of *Die Unioniden* in the Library of the Academy of Natural Sciences of Drexel University of Philadelphia was examined for the dates of publication found on the first page of each of the 43 signatures, combined into 13 *Heft*, or numbered parts, and *lieferung*. Each *Heft/lieferung* was published with a separate title page and year of publication and each contained 2 or more signatures and plates (Table 1). Dates of publication on the title page match the dates of the included signatures for all but three of the *heft* (47, 51, and 52), the date on the title page does not correspond to dates on the signatures (Table 1). The back cover of each *Heft/lieferung* listed the plates and figures contained and the signature numbers included in the *Heft*.

There is confusion around the original date of publication of the generic names *Contradens* Haas and *Uniandra* Haas. Many authors have used different dates for the description for both genera. The following chresonymy summarizes the various dates used for both *Contradens* and *Uniandra*:

***Contradens* Haas, 1911:** Graf and Cummings, 2015 [4 September, 2015].

***Contradens* Haas, 1912:** Simpson 1914: 1005; Van Benthem-Jutting, 1953: 33.

***Contradens* Haas, 1913:** Ortmann, 1917:107; Thiele, 1935: 821; Neave 1939: 825; Modell, 1942: 189; Stansbery and Soehngen, 1964: 17; Solem 1967: 109; Haas 1969a: 96; Haas 1969b: N420; Starobogatov, 1970: 64; Brandt, 1974: 289; Vokes, 1980:73; Vaught, 1989: 122; Millard, 2003: 1120; Graf and Cummings, 2006: 393; Graf and Cummings, 2007: 310; Bouchet and Rocroi, 2010: 30;

AnimalBase, 2015; Graf and Cummings, 2015 [12 May 2015]; ITIS, 2015 [11 September 2015]; GBIF, 2015 [11 September 2015].

***Uniandra* Haas, 1912:** Neave, 1940: 612; Haas, 1969a: 73; Haas, 1969b: N423; Brandt, 1974: 289; Vokes, 1980: 78; Vaught, 1989: 122; Millard, 2003: 1124; GBIF, 2015 [11 September 2015].

***Uniandra* Haas, 1913:** Solem, 1967: 132; Starobogatov, 1970: 64; Graf and Cummings, 2015 [12 May, 2015; 4 September 2015]; ITIS, 2015 [11 September 2015]; FADA, 2015 [11 September 2015].

Modell (1942:189) recognized the genus *Contradens* Haas, 1913 and erected the new subfamily Contradentinae Modell, 1942. Confusion was further compounded by Brandt (1974: 289) as to the priority of the two names and the type species of *Uniandra*. Brandt used *Uniandra* Haas, 1912 and included *Contradens* Haas, 1913 as a junior synonym, incorrectly listing the type species of *Uniandra* as *Unio contradens* Lea, 1838. However, neither genus was listed in the online searchable version of Neave (2015: 14 May 2015).

Graf and Cummings (2015: 12 May 2015) use *Contradens* Haas, 1913, noting Haas (1911: pl. 18) as a *nomen nudum*, referring to the description by Haas, 1913 in *Conchylien Cabinet* (page 173), but take the date of publication from Haas (1913). They subsequently changed the date of *Contradens* to Haas, 1911 in the version on the web with no explanation (4 Sept 2015).

The generic name *Contradens* Haas first appears in plate captions for plates 18–22 in *Conchylien Cabinet* (Haas, 1910–1920). Plates 18–23 and pages 81–88 were published on 1 July 1911 (Table 1). There are no dates on any of the plates, so they take the latest date of publication of the last signature in *Heft* 44 (Table 1). The generic name *Contradens* was associated with 15 previously published species and subspecies names. The generic name *Contradens* was thus available from the date of publication of the plates. This is considered an indication for a genus named before 1931 under ICZN Code articles 12.1, 12.2. The plates do not have a date on them but are included in *Heft* 44 and the last signature in this *heft* has a date of 1 July 1911.

Additionally, *Heft* 44 was stamped on the cover as received by the Library at the Academy of Natural Sciences of Philadelphia as received 16 October 1911. The plates could not have been published after the date stamped received in Philadelphia.

*Contradens* was fully described and *Unio contradens* Lea, 1838 subsequently designated as the type species by Haas (1913a: 35–36). Date of publication of this article was listed as 27 January, 1913 (Solem, 1967: 83). Haas

**Table 1.** Dates of publication of Haas (1910–1920) *Die Unioniden* based on dates on first page of 43 signatures of the copy in the Academy of Natural Sciences of Drexel University, Philadelphia.

Heft	Lieferung/Date	signature	Pages	Figures/plates	Date
41	545 [1910]	1	1–8		1 August 1910
		2	9–16	Pls. 1–6	6 August 1910
42	546 [1910]	3	17–24		8 August 1910
		4	25–32		10 March 1910
		5	33–40	Pls. 7–12	13 August 1910
43	549 [1911]	6	41–48		15 August 1910
		7	49–56	Fig. 1	10 March 1911
		8	57–64	Pls 12a, 13–17	13 March 1911
44	551 [1911]	9	65–72		15 May 1910
		10	73–80		30 May 1911
		11	81–88	Pls. 18–23	1 July 1911
45	554 [1911]	12	89–96		9 July 1911
		13	97–104		20 July 1911
		14	105–112	Pls. 24–29	25 July 1911
		15	113–120		10 February 1912
46	559 [1912]	16	121–128		13 February 1912
		17	129–136	Pls. 30–35	15 February 1912
		18	137–144		25 February 1912
47	566 [1913]	19	145–152		11 March 1912
		20	153–160	Pls. 36–41	12 March 1912
		21	161–168		15 March 1912
48	569 [1913]	22	169–176		21 November 1913
		23	177–184	Pls. 42–47	25 November 1913
		24	185	Notes on figures	
49	571 [1914]	25	185–192		13 February 1914
		26	193–200	Figs. 2–3	21 February 1914
		27	201–208	Pls. 48–53	28 February 1914
		28	209–216	Figs 4–5	29 April 1914
		29	217–224	Figs. 6–7	No date
		30	225–232		1 May 1914
		31	233–240	Figs. 8–9	9 May 1914
50	573 [1914]	32	241–248	Figs 10–11	8 May 1914
		33	249–256	Pls. 54–59	12 May 1914
		34	257–264		14 May 1914
		35	265–272		27 May 1914
		36	273–280	Figs. 12–13	26 May 1914
51	581 [1919]	37	281–288	Pls. 60–63	24 May 1914
		38	289–296		20 May 1914
		39	297–304	Pls. 64–68	23 May 1914
52	582 [1920]	40	305–312	Figs. 14–15	10 September 1920
		41	313–320		20 September 1920
		42	321–328		24 September 1920
		43	329–336		6 October 1920
		44	337–344	Pls. 69–73	8 October 1920

(1913: 173–174) subsequently re-described *Contradens*, listing the type species as *Unio contradens* Lea. The date of publication for pages 169–176 is listed as 21 November 1913 (Table 1). The species and subspecies Haas included in *Contradens* are included and discussed on pages 174–202. Pages 169–208 were published between 21 November 1913 and 28 February 1914 (Table 1).

*Uniandra* was introduced as a section of *Ensidens* (Haas, 1912: 140) and *Unio inaequalis* Rochebrune, 1882 was designated as the type species. *Uniandra* was described on page 140 in Haas (1910–1920) which is dated as published 25 February 1912 (Table 1). Unlike

*Contradens*, *Uniandra* was not used in any plate captions in Haas (1910–1920).

The final result is that *Contradens* Haas dates from 1911 and *Uniandra* Haas, 1912. If they are considered congeneric, *Contradens* has priority over *Uniandra*.

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